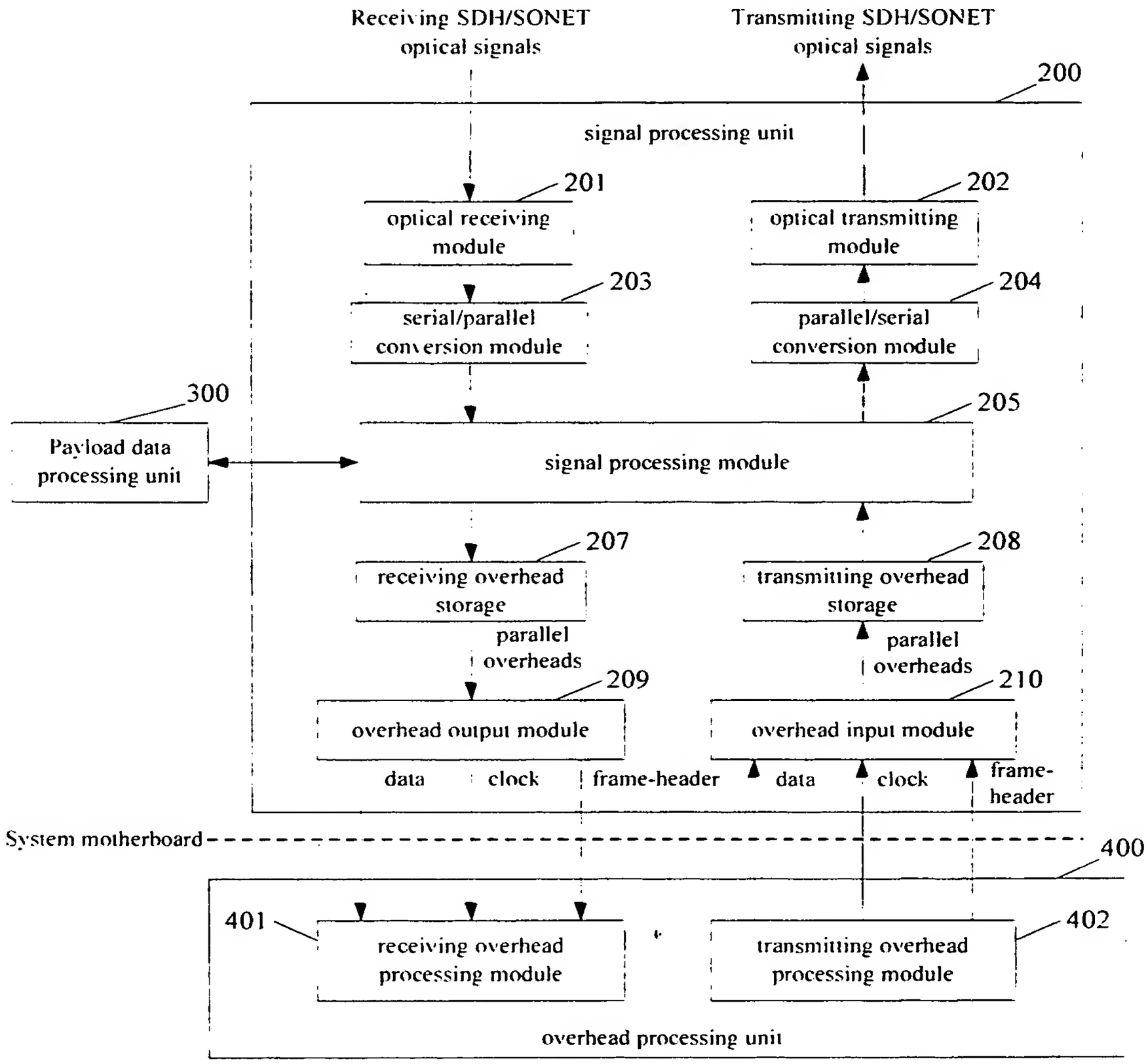

Receiving SDH/SONET optical signals
Transmitting SDH/SONET optical signals
200
signal processing unit
201
optical receiving module
202
optical transmitting module
203
serial/parallel conversion module
204
parallel/serial conversion module
300
Payload data processing unit
205
signal processing module
207
receiving overhead storage
208
transmitting overhead storage
parallel overheads
parallel overheads
209
overhead output module
210
overhead input module
data
clock
frame-header
data
clock
frame-header
System motherboard
400
401
receiving overhead processing module
402
transmitting overhead processing module
overhead processing unit

Fig. 1

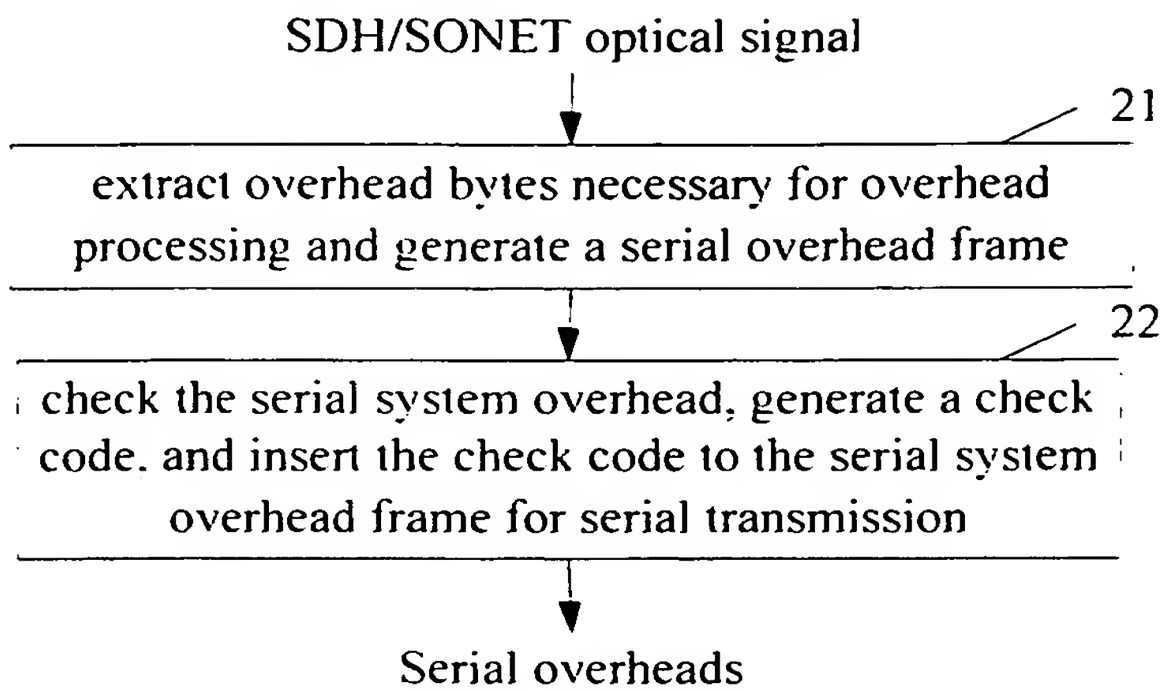

SDH/SONET optical signal
21
extract overhead bytes necessary for overhead processing and generate a serial overhead frame
22
check the serial system overhead, generate a check code, and insert the check code to the serial system overhead frame for serial transmission
Serial overheads

Fig. 2

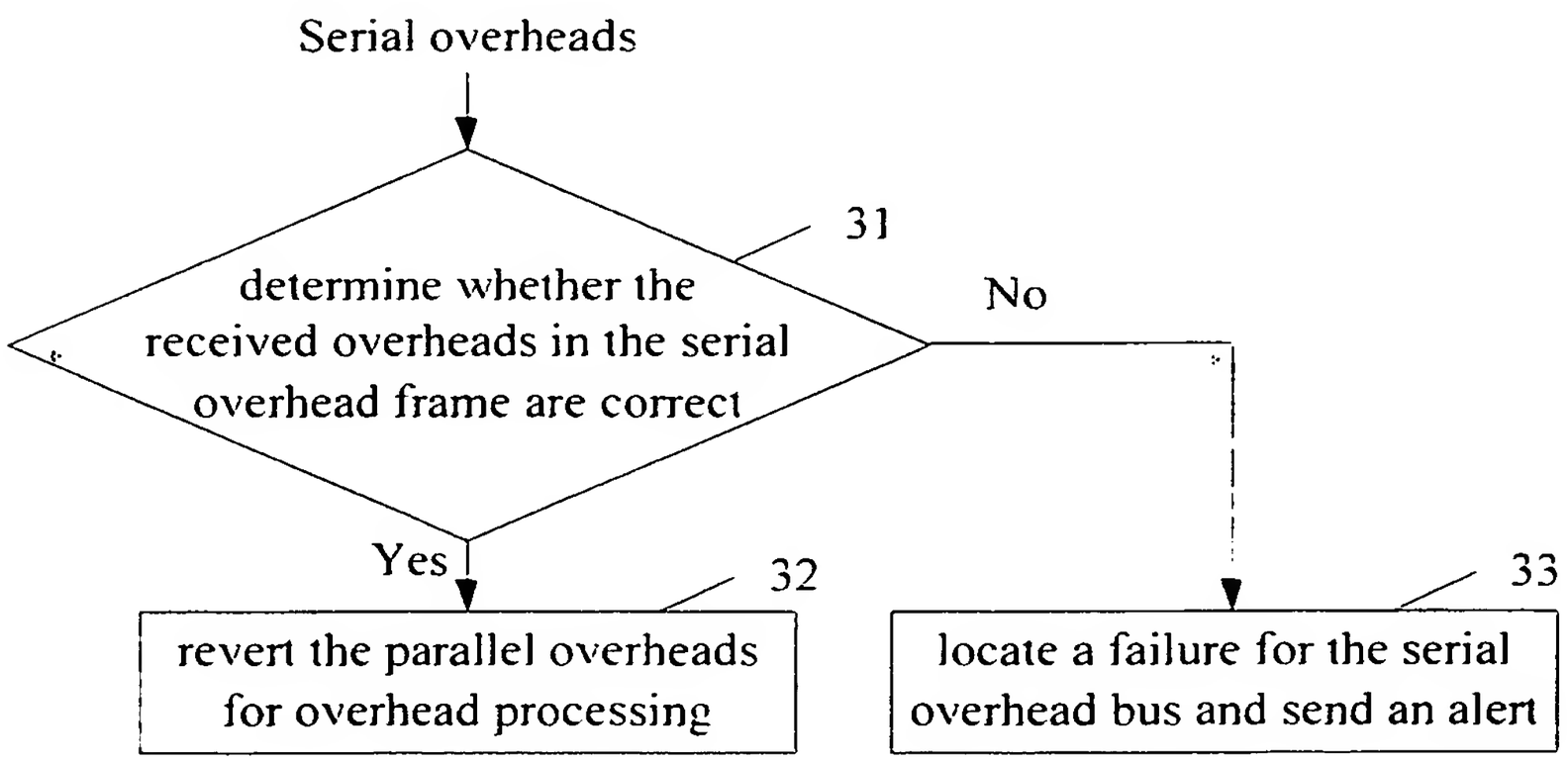

Serial overheads
31
determine whether the received overheads in the serial overhead frame are correct
No
Yes
32
revert the parallel overheads for overhead processing
33
locate a failure for the serial overhead bus and send an alert

Fig. 3

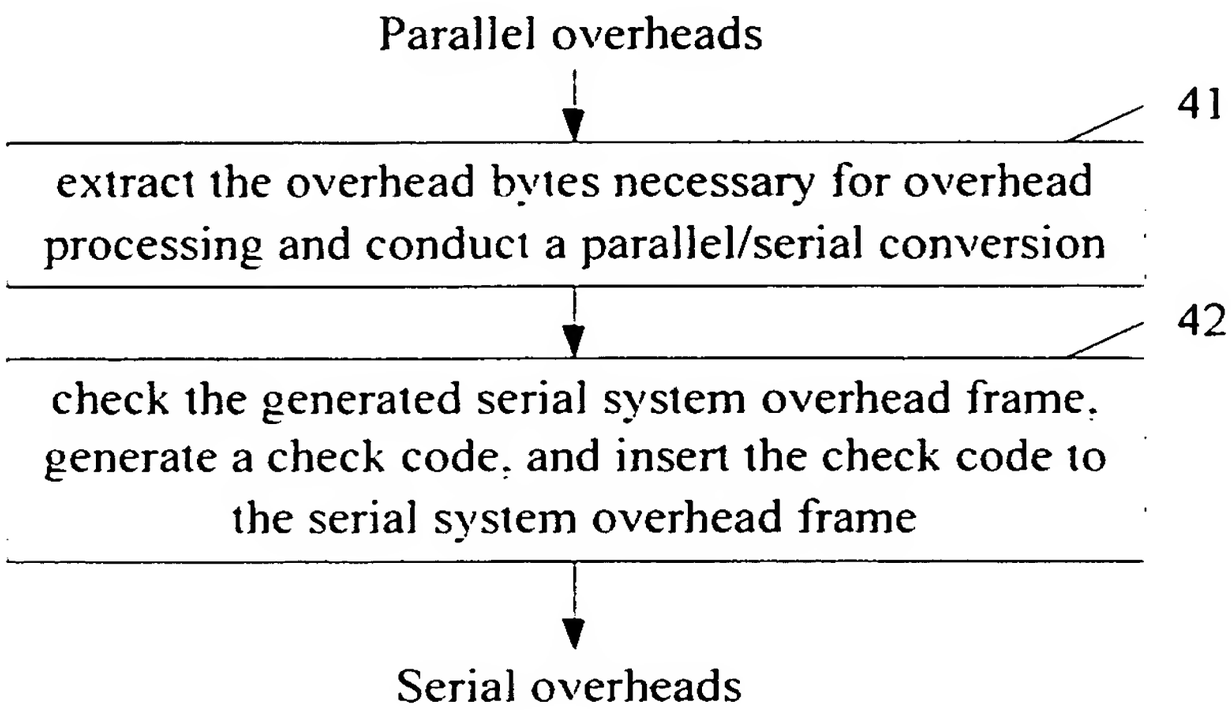

Parallel overheads
41
extract the overhead bytes necessary for overhead processing and conduct a parallel/serial conversion
42
check the generated serial system overhead frame, generate a check code, and insert the check code to the serial system overhead frame
Serial overheads

Fig. 4

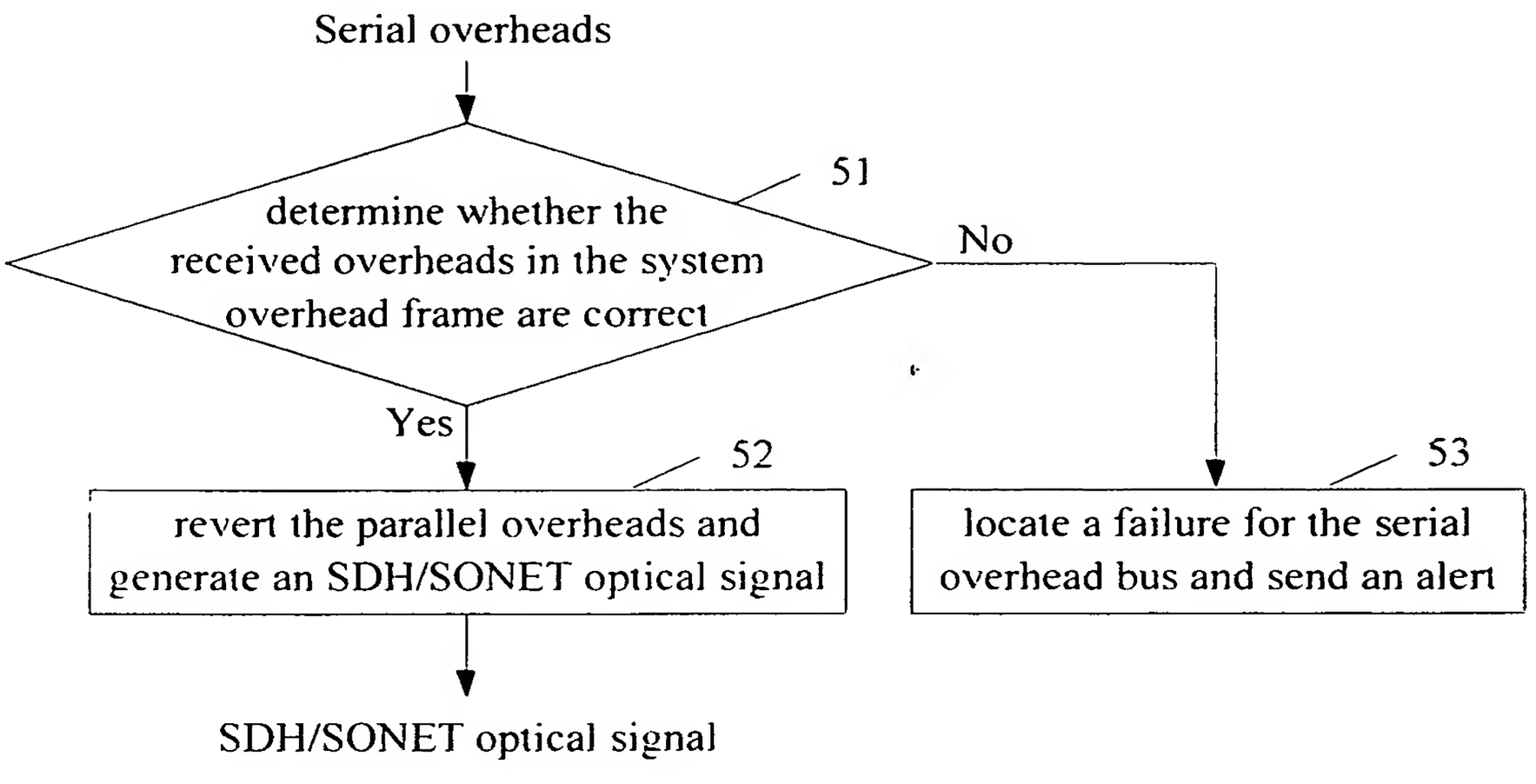

Serial overheads
51
determine whether the received overheads in the system overhead frame are correct
No
Yes
52
revert the parallel overheads and generate an SDH/SONET optical signal
53
locate a failure for the serial overhead bus and send an alert
SDH/SONET optical signal

Fig. 5

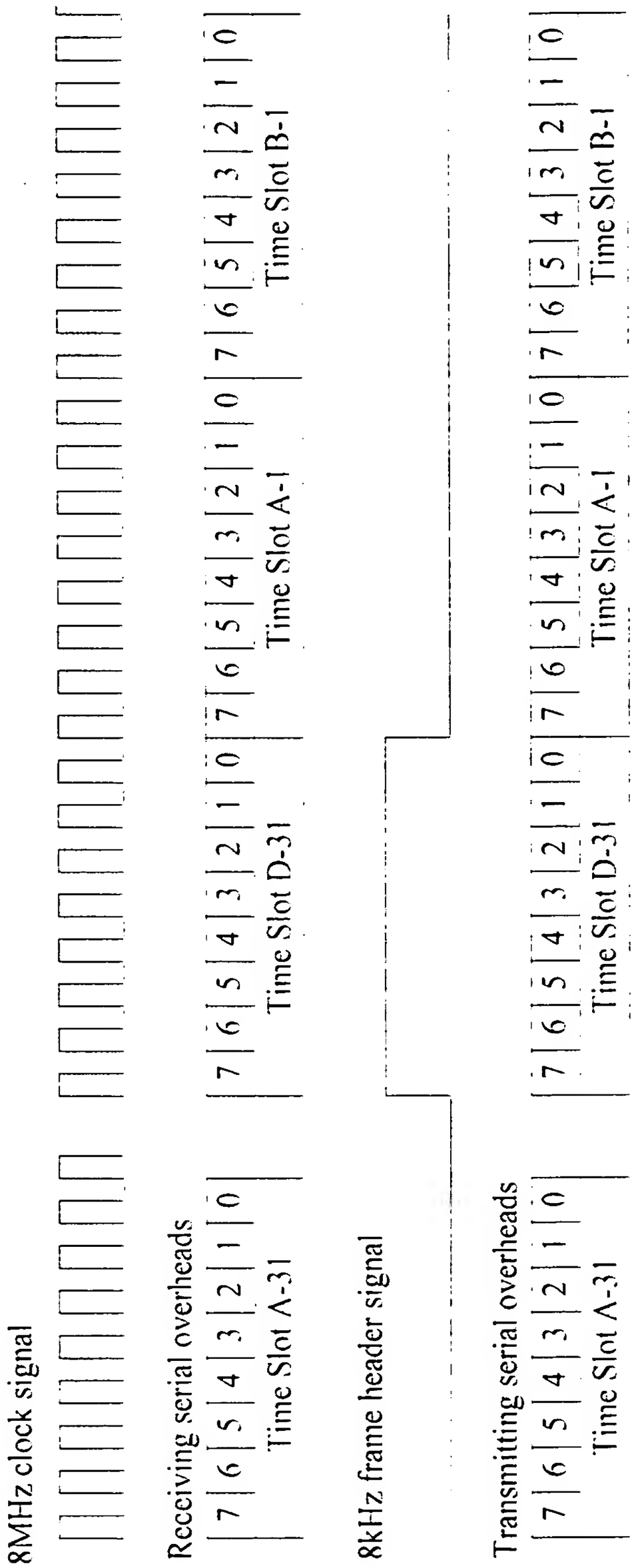
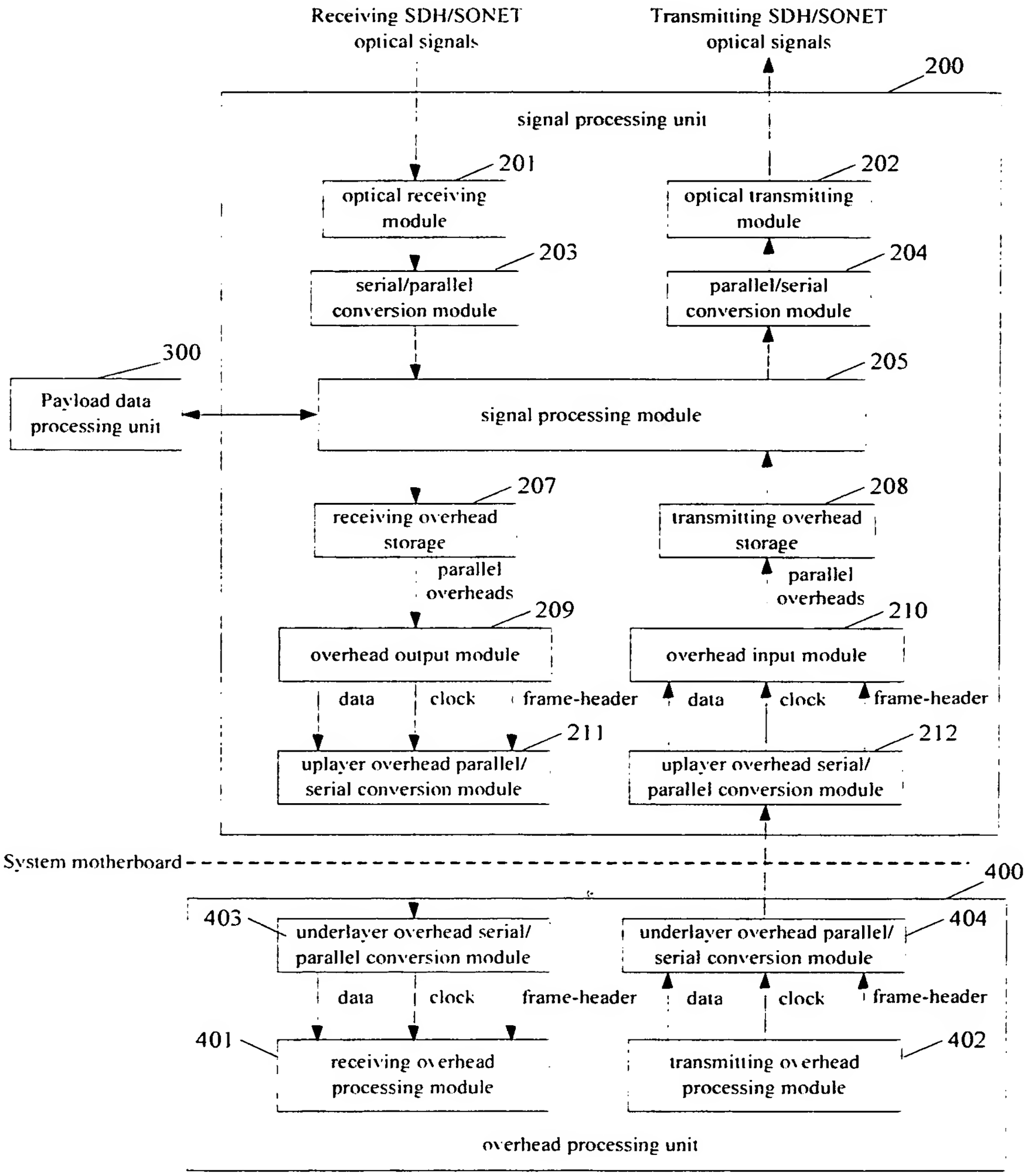

8MHz clock signal
Receiving serial overheads
7 6
Time Slot A-31
8kHz frame header signal
Transmitting serial overheads
7 6 5 4 3 2 1 0
Time Slot A-31
Time Slot B-1
Time Slot C-31
Time Slot D-31
Time Slot A-1

Fig. 6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212
uplayer overhead serial/ parallel conversion module
System motherboard
400
403
underlayer overhead serial/ parallel conversion module
404
underlayer overhead parallel/ serial conversion module
data
clock
frame-header
data
clock
frame-header
401
receiving overhead processing module
402
transmitting overhead processing module
overhead processing unit

Fig. 7